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Ministry of
Natural
Resources

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Cone Collecting in Ontario

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Ontario's forests cover 50% of the Province. These forests are a renewable resource which supports a viable and important industry. The Ministry of Natural Resources is committed to an expanding program of forest regeneration which in turn is dependent on an adequate supply of good quality tree seed. Tree seed is obtained from cones which are collected largely by individual cone pickers.

WHERE DO WE COLLECT CONES?

Cones are collected throughout Ontario. The Province is divided into areas called 'site regions' within which tree species and growing conditions (climate) are similar. Cones are identified by site region and in some cases specific seed sources within site regions. Identification of location of collections is important in the control of quality and quantity of seed collected. The amount of seed collected in each site region will depend on the following: the species required, amount and quality of cones available, and most importantly the demand.

HOW ARE CONES COLLECTED?

Cones are collected from both standing and felled trees; however, collection from standing trees are generally limited to special areas such as seed production areas and seed orchards.

Interested individuals should contact the local Ministry of Natural Resources office. Their staff will indicate the species, location, quantity and price of cones which can be collected. These conditions will be detailed in a cone collection agreement (contract).

HOW ARE CONES PURCHASED?

Once cones are collected and delivered to the location specified in the agreement, they will be assessed for quality. Generally the better the quality, the higher the price paid. Collections containing cones which are small, old, deformed, immature or empty are less valuable. Quality is also determined by a 'cutting test'. (See figures 3, 4 and 6). A cutting test can be performed on most species (except jack pine) by cutting the cone in half lengthwise. The number and condition of the exposed seeds will indicate the quality.

The following summary and photos are designed to assist in the identification and picking of the four major species; black spruce, white spruce, jack pine and white pine.



Fig. 1 Mature black spruce cones. Good quality cones at top to poor quality at bottom. Older cones will be open and will appear light brownish to grey in colour. Spongy, insect damaged, or small and deformed cones should be avoided.



Fig. 2 Black spruce after cutting test. Numerous seed in good quality cone at top. Few seeds in poor quality cone at bottom.

BLACK SPRUCE (left)

Black spruce cones normally mature in early September and may be collected until the end of November. Mature cones appear deep purple in colour although colour may vary significantly and is not a good indicator of ripeness. Cones are elliptical and vary from 15 mm to 45 mm in length. Greatest concentrations of cones will occur near the top of the tree. Older cones should not be collected as they contain little viable seed.

Seeds exposed during a cutting test should have a firm, white centre with a dark brown or black seed coat (see fig. 2).

Cones may be stripped from tops by hand. On felled trees, some pickers prefer to collect cone bearing tops, then remove cones from the tops at home.

Cones should be taken to the local Ministry office as soon as possible or should be stored in a well ventilated location, on screens or spread thinly on a dry floor. Storage in bags or closed containers should be avoided as molding and heating will occur resulting in seed loss.

WHITE SPRUCE (right)

White spruce cones mature about mid-August depending on location and weather conditions. Cones will appear somewhat larger and longer than black spruce (30 to 60 mm). Since white spruce cones open and disperse their seeds quickly, they must be picked within two weeks of ripening. Mature white spruce cones will vary significantly in colour and will be more spongy to the touch than black spruce.

A cutting test is the best indicator of ripeness. Exposed seed should be firm with white centres and dark seed coats (see fig. 4).

Cones will not be as concentrated as black spruce, but will occur mainly in the upper portion of the tree crown.

Cones will heat and mold easily in bags and should be stored similarly to black spruce.



Fig. 3 Mature white spruce cones. Good quality at top to poor quality at bottom. Deformed, insect damaged cones are unacceptable.



Fig. 4 White spruce after cutting test. Good quality mature cone at top with numerous ripe seed. Poor quality cone at bottom is mature but empty as it was probably picked too late. Small, deformed, damaged or open cones should be avoided.



Fig. 5 Good quality mature white pine cone at left. Poor quality middle four cones not acceptable. Immature cone extreme right.



Fig. 6 Cutting test on white pine. Good quality mature full cone at left. Poor quality empty cone at right.

WHITE PINE (left)

White pine cones require two years to mature and ripen. Year-old cones will appear as small, light green cones near tree top. Mature second year cones will appear similar in colour, but will be distinctly larger (90 mm to 150 mm). The large banana shaped cones mature in September and may be picked for a period of about 4 weeks. Their large size make white pine cones easy to pick; however, deposits of gum on the cone can make picking a messy job. Gloves and old clothes are in order. Gum can be removed from hands with paint thinner or commercial hand cleaners.

Collected cones should be dried on screens or tarps spread on a dry floor for several days.

Cutting tests will reveal numerous firm seeds with dark seed coats (see fig. 6).

JACK PINE (right)

Jack pine cones require two years to mature. Year-old cones will appear as small, reddish green oval shaped cones and may be readily distinguished from mature second year cones which will appear larger (30 mm to 70 mm) and light yellowish brown in colour. Jack pine cones are very hard and normally stay closed for several years after ripening. This fact allows jack pine cones to be picked almost year round. Many people prefer to pick jack pine during the late fall and early winter months when the cold weather makes the sinewy cone stems easier to snap off.

The cones cannot be tested for ripeness using the cutting test, because they are quite hard. Large, uniformly tapered cones of the current year yield the most seed. Small cones that are moss covered contain worm holes; partially opened cones should be avoided.

Cones do not have to be dried unless extremely wet and can be stored for long periods in a cool dry location in burlap bags.

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Fig. 7 Good quality mature jack pine cones. Older cone at bottom left corner.



Fig. 8 Poor quality jack pine cones. Cone at upper left too old.

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